

Rhodora

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Conducted and published for the Club, by

MERRITT LYNDON FERNALD, Editor-in-Chief

CHARLES ALFRED WEATHERBY } Associate Editors
LUDLOW GRISCOM }
STUART KIMBALL HARRIS }

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NOTES ON TEXAS PLANTS¹

V. L. CORY

WHAT appears to be an undescribed species of *Petalostemum* was discovered in the Chisos Mountains by the writer, September 26, 1938. A colony of fifty or more of these plants, all in bloom and some beginning to fruit, were growing in moist gravel at the edge of running water along Boot Creek, on the summit of these mountains, and at less than a mile from the South Rim.

PETALOSTEMUM oreophilum, sp. nov., annuum, glabrum; caule 15–40 cm. alto, 1 mm. diametro, erecto tereti plerumque simplice vel ramis paucis erectis vel adscendentibus; foliis 2.5–4 cm. longis adscendentibus, foliolis 13–21, saepius 19, oblongo-cuneatis, ad 5 cm. longis 1.5 mm. latis apice emarginatis glabris, pagina superiore pallide viridibus inferiore caerulescenti-viridibus minuteque punctatis; spicis cylindricis densis villosissimis ad 6 cm. longis et 1 cm. latis; bracteis ovatis 4 mm. longis acuminatis villosis, marginibus scariosis; calyce dense villoso glanduloso 3 mm. longo, lobis anguste lanceolatis tubumque aequantibus; corolla 5 mm. longa purpurascens, vexilli lamina oblongo-ovata 2 mm. longa, ungui 3 mm. longo; petalorum alterum laminis ellipticis minus quam 2 mm. longis; legumine oblique obovoideo sublunato 2.5 mm. longo 2 mm. lato superne villoso; seminibus sublunatis 2 mm. latis compressis, latere unico concavis opacis brunnescentibus.

PETALOSTEMUM oreophilum n. sp. Plant a glabrous annual with slender taproot; stem 15–40 cm. tall, 1 mm. broad; erect, terete, usually simple or with only a few erect or ascending branches; stipules subulate, fugacious; leaves 2.5–4 cm. long, ascending; leaflets 13–21, frequently 19, oblong-cuneate, up to 5 mm. long and 1.5 mm. broad, emarginate at the apex, glabrous, light-green above, bluish-green and

¹ Printed at the expense of the author to insure immediate publication.

minutely dotted beneath; spikes cylindric, dense, very villous, up to 6 cm. long and 1 cm. broad; bracts ovate, 4 mm. long, acuminate, villous, the margins scarious; calyx densely villous, glandular, 3 mm. long, the lobes narrowly lanceolate and as long as the tube; corolla 5 mm. long, purplish; blade of the banner oblong-obovate, 2 mm. long, the claw 3 mm. long; blades of the other petals elliptic, less than 2 mm. long; pod obliquely obovoid, somewhat lunate, 2.5 mm. long, 2 mm. broad, villous above; seed somewhat lunate, 2 mm. broad, flattened, one surface concave, dull and brownish.

In certain respects this plant is closely related to *P. emarginatum*, which, however, is several-branched and with the branches decumbent. Also *P. emarginatum* is less leafy and has fewer leaflets to the leaf, and in appearance is quite unlike our plant of the mountains. The type specimen is deposited in the Gray Herbarium.

While on a field trip with Mr. H. B. Parks to the Big Bend country of Texas in April, 1936, alongside a ranch road and a shallow draw leading down to Alamo de Caesario Creek, just north of Agua Fria Mountain, two white-flowered plants of a species of *Nama* were seen and were collected. To us these plants were different from *Nama Havardii*. Recently, April 3, 1939, on a trip to the same locality with Mr. O. A. Beath of the Wyoming Experiment Station, at a point five miles northeast of the original locality, in a gravelly wash above and to the west side of the gullied bed of Terlingua Creek and in a space possibly 50 feet wide and 150 feet long a hundred or more of these white-flowered plants were observed, growing in almost a pure stand. Material of both collections, 1936 and 1939, has been seen by Dr. C. Leo Hitchcock. I concur with his opinion that our plant more properly should be distinguished as a variety of *Nama Havardii* than as a separate species.

NAMA HAVARDII A. Gray, var. **album**, var. nov., quam varietas typica major patentior succulentior; corolla alba.

NAMA HAVARDII A. Gray, var. **album**, n. var. Differs from the species in having a pure white corolla, and its tendency to make a large, more succulent and more spreading growth.

Although *Nama Havardii* was described as being perennial, in our experience it is of annual duration, growing from a stout taproot. As the white-flowered form is larger in several respects than is the species a detailed description seems desirable.

Plant a succulent, cinereous-villous annual, up to 25 cm. tall and 30 cm. broad, from a stout taproot; stem branched from the base and branched above, the branches stout, ascending-spreading, terete, 1-3

mm. in diameter, densely cinereous-villous; leaves fleshy, densely villous on both surfaces, oblong-elliptic to obovate, up to 4 cm. long and 13 mm. broad, narrowed to slender petioles; flowers borne in lax cymes on slender pedicels; which are up to 5 mm. long; calyx-lobes linear-spatulate, in anthesis 6–7 mm. long, elongating in fruit to 11–12 mm. long, densely villous; corolla tubular-campanulate, pure white, up to 13 mm. long, mostly about 12 mm. long; stamens unequally inserted towards the base of the corolla, the free portion terete, 2–3 mm. long, the adnate portion thickened and much expanded, 3.5–5 mm. long; styles free, mostly 3.5–4 mm. long; capsules about 5 mm. long; seeds brown, minutely pitted.

The variety apparently is of local occurrence only, growing in the gravelly beds of Alamo de Caesario and Terlingua Creeks and their tributaries at and above the junction of these two water courses, but possibly only sparsely on down Terlingua Creek below this junction. At fifteen miles lower down Terlingua Creek a tributary had an abundance of *Nama Havardii* in excellent development, but there were none of the plants having pure white flowers. The type specimen, No. 18602, was collected April 13, 1936, at 18 miles north and slightly west of Terlingua on an airline, in Brewster County, Texas. It is deposited in the Gray Herbarium.

The first collection in Texas of *Nama torynophyllum* Greenm. was made by Mr. Hugh C. Cutler, March 4, 1937, at two miles east of Castolon, in Brewster County. Two subsequent collections have been made by the writer. One of these was taken September 28, 1938, at $1\frac{1}{2}$ miles north of Castolon, or in the same general vicinity as the first collection, while the other was taken April 5, 1939, in the moist gravelly bed of Maravillas Creek, 45 miles northeast on an airline from the locality of the previous collections. This mat-like plant with its small, deeply cup-shaped leaves is something of a curiosity.

Some of the plants of southwestern Texas seemingly were described from growth not of the best development. *Lupinus Havardi* S. Wats. may be taken as an example. As described in "Botany of West Texas," by John M. Coulter, the stems are 30–45 cm. high, which certainly would be rather a modest plant. Mr. O. A. Beath and myself on April 3, 1939, noted a plant of this species, growing in the gravelly bed of Terlingua Creek at 13 miles northeast of Terlingua, that had a spread of four feet and was about two feet high and bore something like fifteen racemes of deep purple flowers, the racemes being nearly two feet in length. This truly is a magnificent blue-bonnet, as the lupines are called in Texas; and a lupine is the State

flower of Texas. However, not many Texans ever have seen *Lupinus Havardi*. Is not this species the most magnificent lupine of the United States? Mr. Beath photographed this particular plant.

TEXAS AGRICULTURAL EXPERIMENT STATION
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LAST SURVIVORS IN THE FLORA OF TIDEWATER VIRGINIA

M. L. FERNALD

(Continued from p. 559)

VERONICA ANAGALLIS-AQUATICA, forma ANAGALLIFORMIS (Boreau) G. Beck (*V. glandifera* Pennell). Spring-heads, ditches and pools, various stations in JAMES CITY, SURRY and NANSEMOND COUNTIES (many nos.). PLATES 580 and 581.

I have studied for many days the series of circumboreal material of *Veronica Anagallis-aquatica*, vainly striving to find the two endemic American species, *V. glandifera* Pennell in Torrey, xix. 170 (1919) and *V. connata* Raf. Med. Fl. ii. 110 (1830) or *V. catenata* Pennell in RHODORA, xxiii. 37 (1921), maintained by Pennell. It seems to me that many specimens of American *V. glandifera* (PL. 580, FIGS. 1, 3 and 5; PL. 581, FIGS. 1, 4 and 6) are quite inseparable from the plants of European *V. Anagallis-aquatica* (or *V. Anagallis* of most European authors) with a few glandular hairs in the inflorescence (PL. 580, FIGS. 2, 4 and 6; PL. 581, FIGS. 2 and 5); and certainly, if the few glands are discounted, it is to me quite impossible to separate material from the type-region (vicinity of Suffolk, Virginia, PL. 581, FIG. 6) from a large series of typical European and Asiatic *V. Anagallis-aquatica*. The differences between *V. Anagallis-aquatica* and *V. glandifera* given by Pennell are as follows:

- "E. Stems distally, rachis, and pedicels glabrous or nearly so; sepals acute to slightly acuminate; style 1.5-3 mm. long; leaf-blades oblong-ovate, mostly widest about the middle, slightly serrate to nearly entire. 17. *V. anagallis-aquatica*.
- EE. Stems distally, rachis, and pedicels pubescent with gland-tipped hairs; sepals strongly acuminate; style 1-1.5 mm. long; leaf-blades lanceolate or broadly lanceolate, widest near the base, usually more strongly serrate. 18. *V. glandifera*."

In Europe, however, *Veronica Anagallis-aquatica* (or *V. Anagallis*)



Photo. W. H. Hodge

VERONICA ANAGALLIS-AQUATICA, forma ANAGALLIFORMIS (*V. glandifera*): FIG. 1, branch, $\times 1$, from Virginia; FIG. 2, young branch, $\times 1$, from Ireland; FIG. 3, fruits, $\times 8$, from Virginia; FIG. 4, fruits, $\times 8$, from Ireland; FIG. 5, fruit, $\times 8$, from Virginia; FIG. 6, fruit, $\times 8$, from Switzerland.



Photo. W. H. Hodge

VERONICA ANAGALLIS-AQUATICA: FIG. 3, fruit, $\times 8$, from Italy.

FORMA ANAGALLIFORMIS (*V. glandifera*): FIG. 1, branch, $\times 1$, from Virginia; FIG. 2, young branch, $\times 1$, from Sweden; FIG. 4, fruit, $\times 8$, from Virginia; FIG. 5, fruit, $\times 8$, from Sweden; FIG. 6, fruit, $\times 8$, from type-locality of *V. glandifera*, near Suffolk, Virginia.

is well known to have a variation of leaf-outline from oblong-ovate to lanceolate: "Folia oblongo-ovata vel lanceolata, acuta denticulata vel subintegerrima"—Hayek in Fedde, Repert. Beih. xxx². 173 (1929); "Blätter . . . lanzettlich bis länglich, . . . gezähnt"—Römpf in Fedde, Repert. Beih. l. 159 (1928). In fact, the European students of *Veronica* consider the presence of glands in the inflorescence of no great taxonomic significance: "Kommt hin und wieder auch mit drüsenhaariger Traube vor = f. *anagalliformis* [Boreau Fl. du centr. de la France ed. 3, II 489]"—G. Beck, Fl. Nied.-Österr. ii. 1051 (1903); "Am meisten variabel ist die B e h a a r u n g . Auser den kahlen kommen in manchen Gegenden glandulöse Formen vor, die kahlstengelig, aber innerhalb der Infloreszenz ± drüsig sind: f. *anagalliformis* (Boreau . . .) Beck."—Schuster, *Unsere Wasserschreienpreise* in Mitteil. Bayer. Bot. Gesells. i. 537, 538 (1906).

Pennell feels that true *Veronica Anagallis-aquatica* with glabrous inflorescences is only "Naturalized from Eurasia"¹ in its broad North American range, because the earliest collection was made in 1883; but the form with some glands in the inflorescence (his *V. glandifera*) he considers an endemic and indigenous species of the eastern United States: "This was collected by Clayton in Virginia before 1739 . . . ; such an early date confirms the distributional evidence that *V. glandifera* is an indigenous species."² Only 17 pages before we are told by him of *V. arvensis*, which may occur "on cliffs and in open woods," that for it "Linnaeus cited other works back to . . . 1623, and among these were Gronovius and Colden; the latter showed the plant's early introduction to New York, and the former (Gronov., Fl. Virg. 4. 1739), based upon Clayton's number 369 . . . shows similar early introduction to Virginia." In the type-region, near Suffolk, Virginia, the glandular American form of *V. Anagallis-aquatica* (i. e. *V. glandifera*) occurs in ditches by the railroad; at its Surry County stations it is in the man-made wells at springheads on old plantations or in rills with European Water Cress and the introduced *Potamogeton crispus*; near Williamsburg it fills an artificially dammed stream or small pond, along with such obviously introduced species as the cultivated South American *Myriophyllum brasiliense* (*M. proserpinacoides*) and the European and generally cultivated Water Cress.

¹ Pennell, Scroph. E. Temp. N. A. (Acad. Sci. Nat. Phil. Mem. i.), 363 (1935).

² Pennell, l. c. 364 (1935).

The second species, similar to *Veronica Anagallis-aquatica* in having sessile cauline leaves, is the plant (PL. 582 and 583) which differs from it in having fewer (5-35)-flowered racemes with more loosely and horizontally divergent pedicels; the smaller corolla roseate to white (instead of larger and bluish-lilac); the round-reniform or broadly obcordate deeply notched capsules mostly longer than the blunt or merely acutish lance-oblong or narrowly ovate sepals. This, like *V. Anagallis-aquatica*, may be either glabrous throughout or more or less glandular at summit or in the inflorescence. It has been treated by Pennell as an endemic North American species, ranging across the continent, from New England and southern Quebec to the Pacific, and southward to southern Pennsylvania, Tennessee, Missouri, Oklahoma, New Mexico, Arizona and southern California. the glabrous form mostly western, the glandular one mostly eastern. The glabrous plant is *V. catenata* Pennell in RHODORA, xxiii. 37 (1921); the glandular one *V. catenata glandulosa* (Farwell) Pennell, l. c. (1921), based on *V. Anagallis-aquatica*, var. *glandulosa* Farwell in Rep. Mich. Acad. Sci. xix. 249 (1917). In his later study¹ Pennell takes up for the American series which he had called *V. catenata* the very incorrectly or erroneously described and wholly doubtful *V. connata* Raf. Med. Fl. ii. 110 (1830), which was said by its author to be close to *V. scutellata*, and which was assigned perfoliate and entire leaves such as are not found in our plant. Pennell recognized that Rafinesque's account lacked absolute clarity, but he felt "that we must replace the name of *V. catenata* by *V. connata*; it is regretfully that I do so because the latter name is actually, though not obviously, a misnomer."

It seems to me from close comparison of specimens that there is no need to take up for the plant under consideration the very doubtful *V. connata* Raf.; neither is *V. catenata* Pennell required for it. I am quite incapable of separating this American series (PL. 582, FIG. 1; PL. 583, FIGS. 1 and 3) from the Eurasian series (PL. 582, FIG. 2; PL. 583, FIGS. 2 and 4) which is there regularly passing as *V. aquatica* Bernh. Über Beg. Pflanzen. Art. 66 (1834). Since arriving at this conclusion after several days of close comparison I find that the same decision was earlier reached by Römpp in his study of the world-wide genus *Veronica*, "*Die Verwandtschafts-verhältnisse in der Gattung Veronica*," in Fedde, Repert. Beih. I. (1928). Here are Römpp's words: "Soviel sich der Originaldiagnose entnehmen lässt, scheint *V. catenata* Pennell

¹ Pennell, Scroph. E. Temp. N. Am. (Acad. Nat. Sci. Phil. Mon. i.), 364-370 (1935).

mit *V. aquatica* Bernh. identisch zu sein . . . *V. catenata glandulosa* (Farwell) Pennell würde, falls sich die oben angedeutete Vermutung beim Vergleich von Originalmaterial bestätigen lassen sollte, der drüsigen Varietät *V. Anagallis* (= *V. aquatica*) var. *glandulosa* Čelak. der alten Welt entsprechen." (pp. 162, 163). Pennell, l. c. 329, refers to Römpp's "comprehensive paper on relationships in the Genus *Veronica*"; but he still maintains the American material as an endemic species.

Unfortunately, the name *Veronica aquatica* Bernh. (1834), the name used by Römpp, by Hayek, by Beck von Mannagetta and, apparently, by all modern European botanists, is a later homonym and, therefore, cannot be held. It is antedated by *V. aquatica* S. F. Gray, Nat. Arr. Brit. Pl. ii. 306 (1821). The latter name is illegitimate because an absolute substitute for *V. Anagallis-aquatica* L. (1753); but, since those who felt (and still feel) that illegitimate names should have no power to invalidate later legitimate but identical names, were overruled at Cambridge in 1930; and since the International Rules (Art. 61) state that: "Even if the earlier homonym is illegitimate . . . the later homonym must be rejected," it is obvious that *V. aquatica* Bernh. cannot be maintained. Römpp cites several binomials under it. The earliest of these is *V. tenerrima* F. W. Schmidt in Mayer, Sammlg. Phys. Aufs. i. 198 (1791), a very questionable plant, which has been referred in each case with seeming finality to all three species, *V. Beccabunga* L., *V. Anagallis-aquatica* L. and *V. aquatica*! Schuster's discussion of it is to the point:

Zu *aquatica* gehört nach Originalen auch *V. anagallis* var. *anagaloides* C. Koch teste Trautvetter (Herb. horti Petropolitani). Eine schwankende Stellung in der Literatur nimmt *V. tenerrima* Schmidt Fl. böhm. 1793, I, 14 ein. Reichenbach (1862) wusste mit ihr nichts anzufangen. Beck (1893) stellte sie zu *V. beccabunga*, Ascherson (1898) zu der Landform von *V. anagallis*. Nach einem Originalexemplar (Comm. Kitaibel HRM) ist die Pflanze Schmidts eine in allen Teilen kleinere, oft wenigblütige, ca. 20 cm hohe Varietät von *V. aquatica*. Auf der Originaletikette bemerkt Schmidt: „An varietas sit Anagallidis, adhuc dubito, donec cultura decidat." Da sie Schmidt 1793 in seiner Flora boëmica als Art aufnahm, scheint sie sich samenbeständig gehalten zu haben. Wegen der ganzrandigen teilweise kurz gestielten unteren Blätter hielt sie Beck vermutlich für eine Form von *beccabunga*, aber alle Merkmale, namentlich auch der vierkantige Stengel, sprechen für *aquatica*.¹

From this account the undesirability of taking up for the circum-

¹ Schuster in Mitteil. Bayer. Bot. Gesells. i. 538 (1906).

boreal *Veronica aquatica* the very doubtful *V. tenerrima* is apparent. Very similarly, *V. acutifolia* Gilib. Exercit. i: 119 (1792) is taken up unequivocally by Jávorka, Magyar Fl. 996 (1895) in place of *V. aquatica* Bernh., but Römpp as unequivocally puts it into the synonymy of *V. Anagallis-aquatica*! Its exact identity now becomes very important to make out. Passing *V. connata* Raf., which is surely very doubtful and with no authentic material known, we come to *V. salina* Schur, Enum. Pl. Transsylv. 492 (1866), with "Caule erecto, 2 ped. et altior. . . . Foliis anguste lanceolatis, . . . amplexicaulibus, . . . margine glanduloso-serrato-dentatis. Floribus minimis . . . Rachi, pedunculis calycibusque parce glanduloso-pilosis. Corollis rubellis calycem aequantibus. Calycis laciniis . . . oblongis obtusiusculis." This is a good account of *V. aquatica* Bernh.; and Schuster, as well as Römpp, placed *V. salina* in the unquestioned synonymy of *V. aquatica*. So far as I can make out the earliest clear and valid name for *V. aquatica* Bernh. (later homonym) is *V. salina* Schur. There are doubtless those who will champion the very vague *V. tenerrima* and the untypified and inaccurately described *V. connata* as against the clearly described and well understood *V. salina*. Personally I prefer a basis of some security rather than one of perpetual insecurity. Until it is shown that I am in error (and this note will call forward corrections if they are needed) I am taking up *V. SALINA* Schur for the illegitimate *V. aquatica* Bernh.

Typical *Veronica salina* was the form with more or less glandular inflorescence. It includes the following named forms:

V. SALINA Schur, Enum. Pl. Transsylv. 492 (1866). *V. Anagallis*, var. *glandulifera* Čelak. in Oest. Bot. Zeitschr. xxvii. 165 (1877). *V. aquatica*, forma *glandulifera* (Čelak.) G. Beck, Fl. Nied.-Österr. ii. 1051 (1893). *V. Anagallis-aquatica*, var. *glandulosa* Farwell in Rep. Mich. Acad. Sci. xix. 249 (1917). *V. catenata glandulosa* (Farwell) Pennell in RHODORA, xxiii. 37 (1921). *V. connata typica* sensu Pennell, Acad. Nat. Sci. Phila. Mon. i. 365 (1935), perhaps not *V. connata* Raf. (1830) which was described as glabrous and with perfoliate and entire leaves.

The wholly glabrous form is

V. SALINA Schur, forma **laevipes** (G. Beck), comb. nov. *V. aquatica* Bernh. Über Beg. Pflanzen Art. 66 (1834), not S. F. Gray (1821). *V. aquatica*, forma *laevipes* G. Beck., Fl. Nied.-Österr. 1051 (1893). *V. catenata* Pennell in RHODORA, xxiii. 37 (1921). *V. connata glaberrima* Pennell, Acad. Nat. Sci. Phila. Mem. i. 368 (1935).



Photo. W. H. Hodge

VERONICA SALINA, forma LAEVIPES (*V. catenata*): FIG. 1, branch, $\times 1$, from California; FIG. 2, branch, $\times 1$, from Bavaria.



Photo. W. H. Dodge

VERONICA SALINA (*V. catenata*, subsp. *glandulosa*) and forma LAEVIPES (*V. catenata*): FIG. 1, branch of slightly glandular plant, $\times 1$, from Indiana; FIG. 2, branch, $\times 1$, from Austria; FIG. 3, fruit, $\times 8$, from South Dakota; FIG. 4, fruit, $\times 8$, from Austria.

EXPLANATION OF PLATES 580-583.

PLATE 580. *VERONICA ANAGALLIS-AQUATICA* L., forma *ANAGALLIFORMIS* (Boreau) G. Beck (*V. glandifera* Pennell): FIG. 1, branch, $\times 1$, of *V. glandifera* (det. Pennell) from near Williamsburg, Virginia, Grimes, no. 4587; FIG. 2, young branch, $\times 1$, from Stradbally, Queens County, Ireland, John Ball; FIG. 3, fruit, $\times 8$, of *V. glandifera* from near Williamsburg, Virginia, Fernald & Long, no. 8847; FIG. 4, fruit, $\times 8$, from Newbridge Mt. Bellew, Galway, Ireland, July 17, 1906, Bowers; FIG. 5, fruit, $\times 8$, from *V. glandifera* (det. Pennell), from Round Top Mountain, Smyth Co., Virginia, alt. 3000 ft., July 2, 1892, J. K. Small; FIG. 6, fruit, $\times 8$, from entre Marin et Thielle, Switzerland, Godet.

PLATE 581. *VERONICA ANAGALLIS-AQUATICA* L.: FIG. 3, fruit, $\times 8$, from fossis propre pagum Fratta, Venetia, Pampanini in Fl. Ital. Exsicc., no. 149; *V. ANAGALLIS-AQUATICA*, forma *ANAGALLIFORMIS* (Boreau) G. Beck: FIG. 1, branch of *V. glandifera* from Eastover, Virginia, Fernald & Long, no. 8845; FIG. 2, tip of branch from Gotland, Sweden, July 25, 1924, T. M. Fries; FIG. 4, fruit, $\times 8$, of *V. glandifera* from Round Top Mt., Smyth Co., Virginia, July 2, 1892, J. K. Small; FIG. 5, fruit, $\times 8$, from Sweden (same specimen as FIG. 2); FIG. 6, fruit, $\times 8$, of *V. glandifera*, from type-locality, near Suffolk, Virginia, Fernald & Long, no. 8846.

PLATE 582. *VERONICA SALINA* Schur, forma *LAEVIPES* (G. Beck) Fernald (*V. aquatica* Bernh., forma *laevipes* G. Beck; *V. catenata* Pennell): FIG. 1, branch, $\times 1$, of *V. catenata* (det. Pennell), from Alviso, Santa Clara County, California, C. F. Baker, no. 1700; FIG. 2, branch, $\times 1$, of *V. salina*, forma *laevipes* from Bavaria, Fl. Exsicc. Bav. no. 460.

PLATE 583. *VERONICA SALINA* (*V. catenata*, subsp. *glandulosa* (Farw.) Pennell) and forma *LAEVIPES* (*V. catenata* Pennell): FIG. 1, branch, $\times 1$, of *V. catenata* subsp. *glandulosa* (det. Pennell) from Starke County, Indiana, Deam, no. 42,185; FIG. 2, branch, $\times 1$, of *V. aquatica* Bernh. (not S. F. Gray) from Lower Austria, Braun & Reckinger in Fl. Exsicc. Austr.-Hung., no. 2620; FIG. 3, fruit, $\times 8$, from Hot Springs, Fall River County, South Dakota, E. J. Palmer, no. 37,432; FIG. 4, fruit, $\times 8$, of *V. aquatica* from same specimen as FIG. 2.

VERONICA DIDYMA Ten. PRINCE GEORGE COUNTY: weed in old yard by James River, City Point, no. 9779.

VERONICASTRUM VIRGINICUM (L.) Farwell. SUSSEX COUNTY: border of moist woods south of Stony Creek, no. 9142. GREENSVILLE COUNTY: rich deciduous woods by Metcalf Branch, east of Emporia, no. 9143.

Pennell, l. c., map 86, indicates no Atlantic Coastal Plain stations from south of New Jersey.

SEYMERIA CASSIOIDES (Walt.) Blake. To the original Virginian stations (in Isle of Wight and Greenville Counties) add others in SUSSEX and NANSEMOND COUNTIES (several nos.). See p. 485.

BUCHNERA AMERICANA L. To the single Coastal Plain Virginian station (in Prince George County) reported in 1937 add others in DINWIDDIE and GREENSVILLE COUNTIES (several nos.). See p. 469.

UTRICULARIA JUNCEA Vahl. GREENSVILLE COUNTY: shallow rill in sphagnum bog about 1 mile northeast of Dahlia, nos. 9149 and 9629.

Beautiful material, up to 5 dm. high. See pp. 472, 485.

U. VIRGATULA Barnhart. GREENSVILLE COUNTY: with the last, nos. 9435 and 9628. See MAP 12 and p. 485.

Much later and decidedly lower (0.7–2 dm. high) than the larger-flowered *U. juncea*, with which it grows.

RUELLIA STREPENS L. PRINCE GEORGE COUNTY: swampy woods, bottomland of Powell's Creek, Garsyville, nos. 8472, 8854. CHARLES CITY COUNTY: alluvial woods along James River, Harrison Point, no. 9150.

Our only Coastal Plain stations; but it was found by Grimes in James City County.

**DICLIPTERA BRACHIATA* (Pursh) Spreng. SOUTHAMPTON COUNTY: wooded alluvial bottomland of Meherrin River, near Haley's Bridge, nos. 8474, 9437 and 9438.

A slight extension northward, Pursh's type having come from the Roanoke River in North Carolina. See p. 486.

**PLANTAGO INDICA* L. (*P. arenaria* Waldest. & Kit.). CAROLINE COUNTY: railroad gravel southeast of Guinea, no. 9153. See p. 474.

**SHERARDIA ARVENSIS* L. DINWIDDIE COUNTY: shaded argillaceous grassland south of Burgess Station, no. 10,030.

HOUSTONIA LONGIFOLIA Gaertn. Reaching the Coastal Plain in SURRY COUNTY: rich calcareous wooded gullies along James River, Eastover, no. 8859. SOUTHAMPTON COUNTY: rich mixed and deciduous woods near Nottoway River, above Carey Bridge, no. 10,432. See p. 466.

OLDENLANDIA BOSCHII (DC.) Chapm. CHESTERFIELD COUNTY: margin of exsiccated old mill-pond in Swift Creek, Lakeview, no. 9439. See p. 477.

VIBURNUM AFFINE Bush, var. *HYPOMALACUM* Blake. AMELIA COUNTY: border of woods west of Ammon, no. 9155. See p. 474.

SPECULARIA BIFLORA (R. & P.) Fisch. & Meyer. Characteristic of fallow fields and roadsides. DINWIDDIE COUNTY: east of Burgess Station, no. 10,041; near Burgess Station, no. 10,042. SOUTHAMPTON COUNTY: Franklin, no. 10,044. GREENSVILLE COUNTY: north of Skipper's, no. 10,043. See p. 496.

CAMPANULA AMERICANA L. Rich calcareous wooded slopes, ravines and thickets along the James, SURRY COUNTY: Claremont Wharf, no. 9158; Sunken Meadow Beach, no. 9159; Eastover, no. 8860. See pp. 466, 475.

LOBELIA SIPHILITICA L. SURRY COUNTY: wet ditch at border of woods west of Claremont, no. 9160; along rills, slopes of gullies in rich beech woods $1\frac{1}{2}$ miles north of Surry, no. 9444; damp rich deciduous woods $1\frac{1}{2}$ miles east of Blizzard's Corners, no. 9445. See p. 475.

LOBELIA PUBERULA* Michx., forma **candida, f. nov., corollis albidis.—VIRGINIA: wooded swamp about 2 miles southeast of Cleopus,

Nansemond County, October 15, 1938, *Fernald & Long*, no. 9631 (TYPE in Gray Herb.).

EUPATORIUM SESSILIFOLIUM L., var. *VASEYI* (Porter) Fern. & Grisc. DINWIDDIE COUNTY: dry clearings and borders of woods south of Burgess Station, no. 9169. SOUTHAMPTON COUNTY: dry sandy woods and thickets near Three Creek, Drewryville, no. 9170.

Notable occurrence on the Coastal Plain of a characteristic plant of the mountains. See p. 476 and MAP 11.

KUHNTIA EUPATORIODES L. To the station already recorded add from PRINCE GEORGE COUNTY: border of dry woods northwest of Talpa, no. 9635.

**HETEROTHECA SUBAXILLARIS* (Lam.) Britton & Rusby. ISLE OF WIGHT COUNTY: dry sandy roadside and waste places, Lee's Mill, no. 8873.

Apparently the first from between North Carolina and Maryland. See p. 469.

**SOLIDAGO BICOLOR* L., var. *OVALIS* Farwell. NORTHAMPTON COUNTY: dry sandy pine woods, Eastville, no. 5506. NANSEMOND COUNTY: woods about 2 miles southeast of Cleopus, no. 9175; moist argillaceous pine and oak woods and clearings north of Factory Hill, no. 9637.

Described from Michigan, var. *ovalis* is represented in the Gray Herbarium from Indiana, Kentucky, Tennessee and West Virginia as well as from the Coastal Plain of Virginia.

SOLIDAGO JUNCEA Ait. Apparently unknown on the Coastal Plain of southeastern Virginia. Our southeastern station is in CAROLINE COUNTY: border of woods west of Guinea, no. 9176.

SOLIDAGO PINETORUM Small. Range extended westward into the outer Piedmont in AMELIA COUNTY (no. 9177) and CAROLINE COUNTY (no. 9178), and on the Coastal Plain northward to GLOUCESTER COUNTY (no. 8876). See pp. 467, 474.

SOLIDAGO SPECIOSA Nutt. NANSEMOND COUNTY: border of sandy woods, South Quay, no. 6714; dry sandy roadside thicket, South Quay, no. 9639.

Although collected (very immature) in August, 1936, *Solidago speciosa* has not been reported, for want of flowering material (now at hand, collected October 13, 1938). It is a species of the interior and on the Coastal Plain, within a few miles of extensive sandy pine barrens, far-isolated from the Blue Ridge, the only other region of Virginia and North Carolina represented in the Gray Herbarium. At the first cited station in Nansemond County it is a close neighbor of *Carphephorus bellidifolius*!

*S. ELLIOTT T. & G. HENRICO COUNTY: sphagnous springy swale bordering Whiteoak Swamp, west of Elko Station, nos. 9179, 9461. As noted on pp. 473 and 478 this is the southeastern typical form of the species, new to Virginia.

S. GRAMINIFOLIA (L.) Salisb., var. NUTTALLII (Greene) Fernald. Local range extended south to GREENSVILLE COUNTY: peaty and argillaceous clearing about 4 miles southeast of Emporia, no. 9467.

ASTER SPECTABILIS Ait., var. SUFFULTUS Fernald in RHODORA, xxxviii. 447, plates 451 and 452. Described from Hampton, now found southward into North Carolina.¹ SUSSEX COUNTY: border of pineland northwest of Wakefield, no. 8880. NANSEMOND COUNTY: border of dry woods about 2 miles southeast of Cleopus, no. 9189.

A. GRANDIFLORUS L. Very precocious colony in DINWIDDIE COUNTY: dry clearings and borders of woods south of Burgess Station, July 16, 1938, no. 8884; also in BRUNSWICK COUNTY: dry upper border of argillaceous swale about 5 miles east of Edgerton, July 18, 1938, no. 8885.

Ordinarily *Aster grandiflorus* is the latest-flowering species of the genus, its splendid rich purple-violet heads expanding in October. The two colonies of plants flowering in July are most precocious. As usual, *A. grandiflorus* in 1938 generally began flowering in October.

A. LAEVIS L. YORK COUNTY: wooded bank, York River, northwest of Yorktown, no. 7682.

Our only Coastal Plain station; not seen by Grimes.

*A. DUMOSUS L. GREENSVILLE COUNTY: sphagnous bog about 1 mile northwest of Dahlia, no. 9473.

Wiegand, in RHODORA, xxx. 165 (1928), cites typical *A. dumosus* (the abundant plant of eastern Virginia is var. *coridifolius* (Michx.) T. & G.) only from southern Maine to New Jersey and southeastern Pennsylvania, with an isolated area on the Blue Ridge of North Carolina.

*A. DUMOSUS, var. SUBULAEFOLIUS Torr. & Gray. GREENSVILLE COUNTY: with the last, no. 8886.

Wiegand, l. c. 168, had seen the variety (originally from Louisiana) from two areas: southeastern Massachusetts and southern Rhode Island; South Carolina to Florida, thence to Texas.

A. INFIRMUS Michx. HENRICO COUNTY: dry oak woods and clearings bordering Whiteoak Swamp, west of Elko Station, no. 9475.

Our first station on the Coastal Plain, but once found by Grimes in James City County.

¹ NORTH CAROLINA: border of moist argillaceous pine and oak woods 1½ miles northeast of Dort School, Gates County, no. 9643. See p. 487.

ACANTHOSPERMUM AUSTRALE (Loefl.) Ktze. To the station long ago reported by Harper add one from GREENSVILLE COUNTY: sandy railroad embankment south of Skipper's, no. 9651.

SILPHIUM ATROPURPUREUM* Retz., forma **hirticaule, f. nov., caule hispido.—Greensville County, VIRGINIA: mixed with the typical glabrous-stemmed plant, border of rich woods near Metcalf Branch, north of Emporia, August 20, 1938, *Fernald & Long*, no. 9199.

IVA FRUTESCENS L. Extends up the James at least to SURRY COUNTY: sandy beach of James River at mouth of Crouch Creek, east of Scotland, no. 9476.

RUDBECKIA TRILOBA L. Local on the Coastal Plain. PRINCE GEORGE COUNTY: wooded slope near Bailey's Creek, east of Hopewell, no. 9204. SURRY COUNTY: rich calcareous woods at head of Sunken Meadow Creek, south of Claremont, nos. 8502 and 9205. GREENSVILLE COUNTY: bottomland woods along Metcalf (on the label erroneously called Caney) Branch, east of Emporia, *Fernald, Griscom & Long*, no. 6727.

R. FULGIDA Ait. To the single Coastal Plain record (Williamsburg) published by Mrs. Erlanson add the following. CHESTERFIELD COUNTY: exsiccated swale northeast of Colonial Heights, no. 9478. SUSSEX COUNTY: border of moist woods south of Stony Creek, no. 9206; thicket bordering pineland about 2 miles east of Stony Creek, no. 9652; damp woods bordering Assamoosick Swamp, about 2 miles northeast of Homeville, no. 9207; damp pine and oak woods and thickets north of Jarratt, no. 9479. GREENSVILLE COUNTY: Emporia, September 22, 1913, *Tidestrom*, no. 6919. See p. 475.

**HELIANTHUS CUCUMERIFOLIUS* Torr. & Gray. ISLE OF WIGHT COUNTY: dry sandy roadsides and waste places, Lee's Mill, no. 8897.

Escape from cultivation; native of the Gulf States.

COREOPSIS TRIPTERIS L. A plant primarily of the interior of the continent, found locally on the Coastal Plain. SUSSEX COUNTY: border of moist woods south of Stony Creek, no. 9217; exsiccated argillaceous pineland about 2 miles east of Stony Creek, no. 9221; damp woods bordering Assamoosick Swamp, about 2 miles northeast of Homeville, no. 9222. GREENSVILLE COUNTY: border of rich deciduous woods (just at the Fall Line) by Three Creek, north of Emporia, no. 9219. SOUTHAMPTON COUNTY: border of swampy woods about 1 mile northeast of Branchville, no. 9218. Also at the eastern border of the Piedmont: AMELIA COUNTY (boggy swale, Otterburn, about 1 mile west of Amelia Courthouse, no. 9216) and in CAROLINE COUNTY (border of woods west of Guinea, no. 9220). See p. 475.

Search through the geographically unorganized citations by Sherff fails to find any material cited from Virginia.

BIDENS CORONATA L., var. *TRICHOSPERMA* (Michx.) Fernald. See *RHODORA*, xl. 350, pl. 506, figs. 8 and 9 (1938). A very extensive

station in SURRY COUNTY: tidal marsh at mouth of Crouch Creek, east of Scotland, nos. 9486 and 9658.

B. COMOSA (Gray) Wiegand. HENRICO COUNTY: field behind Stadium, University of Richmond, September 28, 1934, *M. Ellyson & C. Puette* (as *Solidago squarrosa*!, marked "common," this, in view of the misidentification, perhaps to be questioned); swampy thicket bordering Whiteoak Swamp, south of Elko Station, no. 9485. See p. 478.

A fifteen-minute search of the geographically unorganized stations cited by Sherff reveals no Virginian station in the southeastern counties.

HELENIUM NUDIFLORUM Nutt. SURRY COUNTY: border of roadside ditch west of Surry, no. 10,845. GREENSVILLE COUNTY: peaty and argillaceous clearing about 4 miles southeast of Emporia, no. 8511; pastured field northeast of Emporia, no. 10,451.

*H. BREVIFOLIUM (Nutt.) Gray. GREENSVILLE COUNTY: along a seepy old woodroad north of Dahlia, no. 10,051.

First from north of North Carolina. See p. 491.

ARTEMISIA ANNUA L. GREENSVILLE COUNTY: railroad yard, North Emporia, no. 9487.

SENECIO OBOVATUS Muhl. SURRY COUNTY: rich alluvial woods and thickets back of sand-beach of James River, Eastover, no. 8901. See p. 466.

CIRSIUM NUTTALLII DC. To the single known station in the state add another, also in SOUTHAMPTON COUNTY: exsiccated swampy woods about 1 mile southwest of Branchville, no. 9224.

CHONDRILLA JUNCEA L. Range extended southward from the northern part of the state to CAROLINE COUNTY: sandy open slope, north of Golansville, no. 9225. DINWIDDIE COUNTY: cinders of freight-yard, Norfolk and Western Railroad, Petersburg, no. 10,847.

*LACTUCA CANADENSIS L., var. LATIFOLIA Ktze., forma *villicaulis* f. nov., caulibus villosis.—VIRGINIA: abundant with the glabrous plant, clearing west of Burgess Station, Dinwiddie County, July 16, 1938, *Fernald & Long*, no. 8903 (TYPE in Herb. Gray; ISOTYPE in Herb. Phil. Acad.); sandy roadside thicket south of Reams, Dinwiddie County, July 14, 1938, *Fernald & Long*, no. 8902; swampy woods about 1 mile west of Skipper's, Greensville County, September 18, 1938, *Fernald & Long*, no. 9490.

PRENANTHES AUTUMNALIS \times SERPENTARIA. A small group of very large plants with a clear combination of the characters of the two common species, in NANSEMOND COUNTY: seeping bank of ditch at margin of woods, about 2 miles southeast of Cleopus, no. 9661.

P. ALTISSIMA L. SURRY COUNTY: slopes of gullies in rich woods 1½ miles north of Surry, no. 9491.

A Coastal Plain station for a northern and montane species. See p. 477.

SILENE CAROLINIANA

ROBERT T. CLAUSEN

(Plate 584)

THE NECESSITY of verifying the name of a cultivated plant, received as *Silene Wherryi* Small, has led to a review of the relationships of that species to *Silene caroliniana* Walter and *S. pensylvanica* Michaux. A survey of the literature indicates that no author has discussed the status of *S. Wherryi* since it was described by Small (1926), while the matter of the proper designation for the Wild Pink of the northeastern states was left unsettled by Weatherby and Griscom (1934).

In the present study, the writer has examined all of the material, representing the three names involved, available in the following institutions: Bailey Hortorium, Cornell University (BH); Brooklyn Botanic Garden (Bk); herbarium of the Department of Botany, Cornell University (Corn); herbarium of Duke University (Duke); Gray Herbarium, Harvard University (G); herbarium of the University of Michigan (Mich); Missouri Botanical Garden (M); New York Botanical Garden (NY); Academy of Natural Sciences of Philadelphia (Ph); and United States National Herbarium (US). He is indebted to the officers of these several institutions for the privilege of borrowing and studying their specimens. He also wishes to express his appreciation to Mr. C. A. Weatherby and to Mr. C. C. Deam for various helps and courtesies.

The conclusions reached here represent the result of looking over somewhat more than two hundred herbarium sheets. With the exception of four sheets which were designated as hybrids, all were originally labelled with a binomial name, as either *S. caroliniana*, *S. pensylvanica*, or *S. Wherryi*. Despite the fact that the same collection might bear a different name in each of three herbaria, indicating confusion and possible intergradation, no varietal names appear on any of the sheets, nor does it appear that any varietal combinations have ever been made. From available herbarium material, it was evident that identifications of Wild Pinks have been made in the most arbitrary fashion and that the differences between the three so-called species had never been properly elucidated.

As a preliminary attempt to clear the confusion, the original descriptions of the three names were consulted. On a basis of these diagnoses, a tentative key was prepared. The descriptions were full

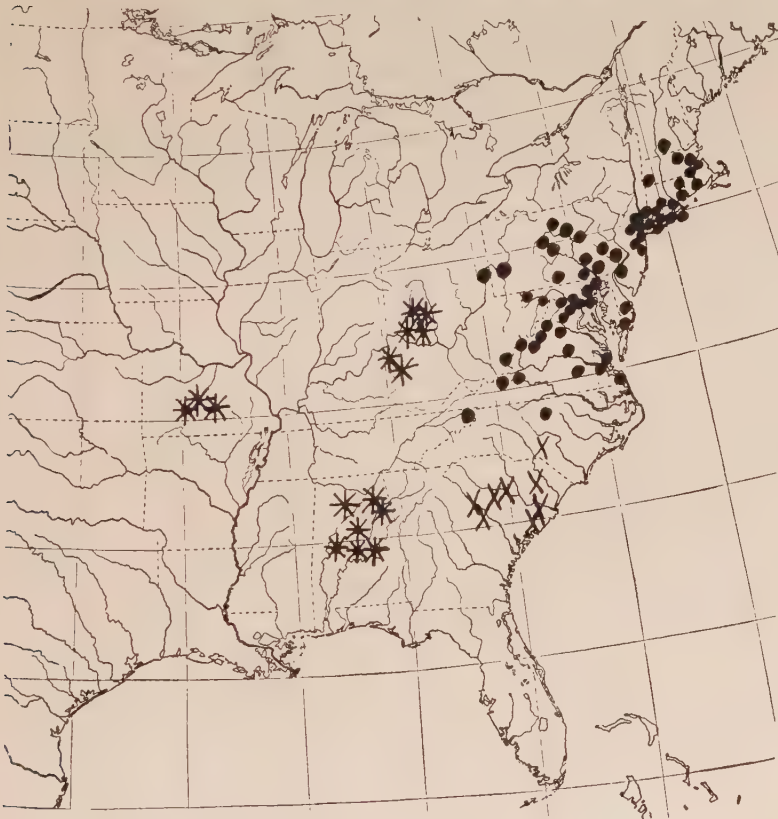
enough to permit this. *Silene caroliniana* was said to have tomentose obtuse basal leaves, *S. pensylvanica* was described as viscid-pubescent with lanceolate leaves, while *S. Wherryi* was differentiated by the non-glandular hairs of the calyx and other characters. Study of the type of *S. Wherryi* and of specimens from Pennsylvania and South Carolina, which seemed to agree with the descriptions of the other two species, further helped to indicate the proper interpretation of the three names. With this preparation and completely disregarding geographical data on labels, all specimens were run through the key and sorted into three piles. The result was amazing. Plants in the pile for *S. pensylvanica* were from southern New Hampshire and Massachusetts south to northern North Carolina and west to eastern Ohio and northeastern Tennessee; those in the pile for *S. caroliniana* were from southern North Carolina, South Carolina, and Georgia; and those in the pile for *S. Wherryi* were from southern Ohio, Kentucky, Missouri, and Alabama. There were only two difficulties to spoil this picture. One was a pile of five sheets which would not fit the key at all—and for good reasons; one represented *Phlox subulata* and the other four *Silene virginica*. The other difficulty consisted of a small pile of sheets representing specimens which seemed to bridge the two gaps which should exist if the three names under discussion really represent species. Occasional specimens from Virginia and Maryland, which seemed more like *S. pensylvanica*, also somewhat suggested *S. caroliniana*. Likewise, certain specimens from West Virginia and western Virginia seemed to be intermediate between *S. Wherryi* and *S. pensylvanica*. Unfortunately, the areas where one would expect intermediates to occur were mostly deadspots. There was little available material from North Carolina or from the parts of Ohio, Kentucky, and Tennessee in which one might be interested. Yet, the facts as determined from this little survey seem rather definite and at the same time different from the interpretation of contemporary collectors who have used one of the three available binomials and perhaps have not much considered the problem involved.

For a long time, the Wild Pinks of the Atlantic Coastal Plain and of the Mississippi valley were considered the same. Superficially the plants from the two regions appear similar. It was not until the critical field-student, Prof. E. T. Wherry, and Dr. J. K. Small attacked the problem that the differences between the populations were



FIG. 1, pistil and calyx of *SILENE CAROLINIANA* ssp. *PENNSYLVANICA*, $\times 4.7$;
FIG. 2, pistil and calyx of *S. PENNSYLVANICA* ssp. *WHERRYI*, $\times 4.7$.

noticed. Today these differences are at once apparent to the trained eye; but, since the untrained eye still will think of the whole complex as one species, while intermediates do occur, indicating continuity in the series, it seems better to interpret these technical differences as



Map 1. Range of *Silene caroliniana* ssp. *typica* (X), of ssp. *pennsylvanica* (•), and of ssp. *wherryi* (*).

representing geographical races or subspecies, not full species. Data are not today available to indicate whether these races represent populations diverging from a common ancestor or populations coming together, nor is there any cytological evidence to permit theorizing. The writer can only state what he knows from observation: that there are three decided morphological tendencies in the Wild Pinks; that

these are very strongly correlated with geographical range; and that occasional intermediates between the three tendencies do occur. As the proper name for this aggregate species, that of Walter, *S. caroliniana*, which is the oldest, must be employed.

Silene caroliniana Walter, *sensu latiore*, may now be characterized as a perennial herb with a stout caudex, 4–32 cm. high, with a rosette of basal leaves varying from narrowly oblanceolate and acute to broadly oblong-spatulate and blunt, either glabrous on both surfaces or rather densely pubescent, always ciliate, tapering into hairy petioles; stems and cauline leaves puberulent or pubescent with glandular or eglandular hairs; cauline leaves linear-oblong, lanceolate, or ovate; inflorescence cymose with the flowers short-stalked; calyx narrowly or broadly tubular, with the pubescence glandular or eglandular; petals pale or dark pink, slightly notched, with the claws equaling or exceeding the calyx; stamens 10; styles 3, equaling or exceeding the ovary.

Key to the subspecies of *SILENE CAROLINIANA*

- A. Rosette-leaves oblong-spatulate, rarely oblanceolate, blunt or rarely mucronate, 0.5–3.0 cm. broad, rather densely pubescent on both surfaces and on margins with short white hairs. a. *Silene caroliniana* ssp. *typica*.
- AA. Rosette-leaves oblanceolate, elliptic-lanceolate, or rarely spatulate, mostly acute or rarely blunt, 0.1–2.0 cm. broad, glabrous on both surfaces, ciliate. B.
- B. Calyx narrowly tubular, densely glandular-pubescent; claws of petals slightly exceeding the calyx. b. *Silene caroliniana* ssp. *pennsylvanica*.
- BB. Calyx broadly tubular, densely pubescent or puberulent with white eglandular hairs; claws of petals usually equaling or rarely exceeding the calyx. c. *Silene caroliniana* ssp. *Wherryi*.

SILENE CAROLINIANA Walter, ssp. **typica**. *S. caroliniana* Walter, *Flora Caroliniana*, p. 142 (err. typ. 241). 1788. In the absence of an authentic type specimen annotated by Walter himself, the species is best interpreted from the original description: "*Silene caroliniana* floribus magnis, petalis obtusis, calycibus cylindricis, panicula subtrichotoma; foliis radicalibus tomentosis obtusis, caulinis oppositis acutioribus. Varietates. Petalis supra coccineis, subtus incarnatis; et petalis utrinque incarnatis."—Perennial, 7–20 cm. high; rosette-leaves oblong-spatulate, rarely oblanceolate, blunt or rarely mucronate, 3–12 cm. long, 0.5–3.0 cm. broad, rather densely pubescent on both surfaces and on margins with short white hairs; stalks 4–19 cm. long, puberulent to hirsute, with hairs glandular towards upper portion of stems; cauline leaves linear-oblong, acute at apex, 1.3–4.8 cm. long, 0.2–0.8 cm. broad; inflorescence cymose; calyx narrowly tubular, 1.5–1.7 cm. long, densely glandular-pubescent; petal-blades 0.8–1.3 cm. long, with claws slightly exceeding calyx.

Weatherby and Griscom (1934) have pointed out the distinctive characters of this population: pubescent with long matted hairs; radical leaves oblanceolate to broadly obovate, obtuse or mucronulate; petals white or tinged with pink; teeth of the glandular-viscid calyx red. Weatherby's collection, no. 6114, from dry open mixed woods south of the Congaree River opposite Columbia, may well be taken as representative of the plant described by Walter.

In a letter to the writer, Mr. Weatherby has furnished a description and details concerning a specimen¹ in the Walter herbarium at the British Museum. The original label reads "*Silene an virginica* ?", but some one has written on the page in pencil, "*S. caroliniana* Walter." The description furnished by Mr. Weatherby indicates that the basal leaves of this specimen are oblanceolate and acutish and that the pubescence is most nearly matched by a collection from near Hazelgreen, Laclede Co., Missouri, *E. J. Palmer 39198*, but the calyx is more slender and the flowers are smaller than in the Palmer specimens. Since the Missouri plants represent *Silene Wherryi* Small, which is characterized by the broad tubular calyx, the specimen at the British Museum is probably not to be referred to that. Further, if the basal leaves of the supposed type are oblanceolate and acutish, with pubescence as in the Palmer specimens, then Walter's description, which definitely states that the basal leaves are tomentose and obtuse, does not check with the specimen that he supposedly gave to Fraser. Of twelve collections, some of them represented in several herbaria, from South Carolina and Georgia, all agree with the description in the *Flora Caroliniana*. In view of this situation it seems better to interpret Walter's species, not by the specimen in the British Museum, but in accordance with the original description and the series of specimens at hand from South Carolina and Georgia.

The ssp. *typica* is a plant of sandy open woods, dry sandy pine lands, and rocky woods. It flowers from late March through April. The range includes the coastal plain and lower piedmont province of southern North Carolina, South Carolina, and Georgia. NORTH CAROLINA. Richmond Co.: Hamlet, *C. S. Williamson* (Ph). SOUTH CAROLINA. Aiken Co.: Warrenville, *E. J. Palmer 39882* (G). Berkeley Co.: Santee Canal, *H. W. Ravenel* (G). Darlington Co.: Darlington, *L. F. Ward* (NY, US). Dorchester Co.: Summerville, *H. H.*

¹ Since this manuscript was submitted for publication, the writer has received, through the kindness of Mr. A. H. G. Alston of the British Museum (Natural History), a photograph of the specimen of *Silene caroliniana* in the Walter herbarium. Study of this photograph necessitates no changes in the above text.

Rusby (NY). Lexington Co.: Columbia, *C. A. Weatherby 6114* (Duke, G, NY, US). Richland Co.: Columbia, *K. A. Taylor* (Mich). Also near Ashley River, *B. L. Robinson 58* (G) and without specific locality, *L. R. Gibbs* (US). GEORGIA. Burke Co.: bank of Rocky Creek, Waynesboro, *R. M. Harper 2075* (G, M, NY, US). Richmond Co.: Augusta, *S. T. Olney & J. Metcalf 17* (G). Also other specimens without complete data.

SILENE CAROLINIANA ssp. **pensylvanica** (Michx.), n. comb. Figure 1. *S. pensylvanica* Michx., Flor. Bor.-Am. 1: 272. 1803. The writer has formed his concept of this species from the original description: "S. viscido-pubens: foliis cuneatis, caulibus lanceolatis: cauliculis in summitate paucifloris: petalis leviter emarginatis, subcrenatis. Obs. Affinis *S. Virginicae*: humilis, cauliculis simpliciusculis: petala obtusissima, purpurascens. Hab. in Pennsylvania."

Perennial, 4-30 cm. high; rosette-leaves oblanceolate or rarely spatulate, mostly acute or rarely blunt, 1-15 cm. long, 0.1-2.0 cm. broad, glabrous on both surfaces, ciliate; stem glandular-pubescent above cauline leaves; cauline leaves opposite, lanceolate, ovate, or elliptical, acute or blunt, 1-7 cm. long, 0.2-0.8 cm. broad; inflorescence cymose; calyx (1.0) 1.3-1.8 cm. long, narrowly tubular, densely glandular-pubescent; petals pink, with the blades 0.8-1.5 cm. long and the claws usually slightly exceeding the calyx.

Occasional specimens from Virginia and Maryland are intermediate between this and the preceding subspecies. These have blunt rosette leaves, but the pubescence is more like that in the northern subspecies than in ssp. *typica*.

The nomenclatorial absurdity resulting from the name *Silene caroliniana* ssp. *pensylvanica* is regrettable, but seems unavoidable. Such an example, and others, like *Cercis canadensis* and *Asclepias syriaca*, serve to demonstrate that geographical descriptive adjectives for specific names may lead to confusion.

Although *Silene caroliniana* is offered in the horticultural trade by several nurserymen, no specimens of ssp. *typica* have been seen by the writer. Specimens under that name have been ssp. *pensylvanica*. Plants offered as *S. pensylvanica* represent the northern race.

The ssp. *pensylvanica* is a plant of dry open woods, gravelly banks, and rocky places. It flowers mostly in May and early June, although in Virginia the flowering period begins in April. The range extends from southern New Hampshire and Massachusetts south through southern New York and northern New Jersey to southern Virginia and northern North Carolina, and west through central and western Pennsylvania to eastern Ohio and extreme northeastern Tennessee.—NEW HAMPSHIRE. Cheshire Co.: Alstead, ——— (M 148015). MASSACHUSETTS. Berkshire Co.: Mount Washington, *C. H. Knowlton*

and *C. Schweinfurth* (M, Ph). Middlesex Co.: Framingham, *A. J. Eames* (Corn). Norfolk Co.: Norfolk, *Thomas Morong* (M, NY). RHODE ISLAND. Warwick Co.: Warwick, *J. W. Congdon* (NY). CONNECTICUT. Fairfield Co.: Greenwich, *Lizzie Churchill* 665 (M). New Haven Co.: Milford, *E. H. Eames* (US). New London Co.: Franklin, *R. W. Woodward* (G). Windham Co.: Scotland, *C. H. Bissell* (G). NEW YORK. Bronx Co.: Bronx Park, *G. V. Nash* 113 (NY). Manhattan Co.: New York, ——— (M 148007). Nassau Co.: Westbury, *Helen Hicks* (G). Queens Co.: Jamaica, *F. C. Stewart* (Corn). Richmond Co.: Grant City, *F. W. Pennell* 9947 (Ph). Suffolk Co.: Southampton, *W. N. Clute* 30 (NY). Westchester Co.: Ossining, *P. B. Schumm & A. Gershoy* (Corn). NEW JERSEY. Bergen Co.: Alpine, *A. Gershoy* (Corn). Gloucester Co.: Westville, *C. S. Williamson* (Ph). Hudson Co.: Snake Hill, *G. B. Branin* (Bk). Middlesex Co.: South River, *K. K. Mackenzie* 3978 (M, US). Monmouth Co.: Freehold, ex herb. *O. R. Willis* (Mich). Passaic Co.: Wanaque, *Ludlow Griscom* 1200 (G). PENNSYLVANIA. Allegheny Co.: Moon Tp., *J. A. Shafer* 192 (Corn). Blair Co.: Birmingham, *Miss Davis* (Mich). Centre Co.: ———, *J. T. Rothrock* (G). Columbia Co.: Knob Mountain, *W. H. Harrison* (Ph). Dauphin Co.: Harrisburg, *F. S. Chapman* 6843 (Duke). Franklin Co.: Mt. Alto, *Jos. Illick* (M). Lancaster Co.: Chestnut Hill, *J. K. Small* (NY). Lebanon Co.: Jonestown, *H. W. Pretz* 8098 (Ph). Lycoming Co.: between Jersey Shore and Waterville, *K. M. Wiegand* (Corn). Mifflin Co.: Rawlinsville, *J. Galen* (BH). Montgomery Co.: Linfield, *B. Long* 11644 (G). Montour Co.: Danville, *H. B. Meredith* (Ph). Perry Co.: ———, *L. L. Smith* (Ph). Schuylkill Co.: McKeanburg, *K. M. Wiegand* (Corn). York Co.: Glen Rock, *W. M. Glatfelter* (M 148009). DELAWARE. Sussex Co.: Millsboro, *A. Commons* (G, M, NY, Ph). MARYLAND. Baltimore Co.: Orange Grove, *C. C. Plitt* 661 (G). Garrett Co.: Oakland, *J. D. Smith* 402 (US). Howard Co.: Ellicott City, *Bro. Arsène* 1407 (US). Montgomery Co.: Glen Echo, *C. L. Pollard* 87 (US). Prince Georges Co.: Hyattsville, *P. C. Standley* 13134 (US). Washington Co.: Harper's Ferry Heights, *S. Watson* (G). Worcester Co.: Snow Hill, *Mrs. Charles E. Moldenke* 8427 (NY). DISTRICT OF COLUMBIA. Sandy Landing, *J. H. Comstock* (Corn). VIRGINIA. Augusta Co.: Shenandoah Valley, *Eleanor A. Friend* 10427 (NY). Bath Co.: Nimrod Hall, *Lee Sowden* (Ph). Culpepper Co.: Waterloo, *H. B. Meredith* (Ph). Dinwiddie Co.: Petersburg, *E. T. Wherry* (US). Fairfax Co.: Great Falls, *A. H. Moore* 5096 (G). Fauquier Co.: Bull Run Mts., *H. A. Allard* 258 (G). Henrico Co.: Richmond, *J. R. Churchill* (G). James City Co.: Williamsburg, *E. J. Grimes* 2563 (G). Loudoun Co.: Bluemont, *P. C. Standley* 13153 (US). Montgomery Co.: Blacksburg, *W. A. Murrill* (NY). Princess Anne Co.: Creeds, *M. L. Fernald & L. Griscom* 4390 (G). Roanoke Co.: Roanoke, *E. G. Britton & A. M. Vail* (NY). Rockbridge Co.: Buena Vista, *F. F. Huber* (Ph). Rockingham Co.: Mt. Crawford, *A. A.*

Heller 788 (G, M, NY, Ph, US). Surry Co.: Claremont Wharf, *M. L. Fernald & B. Long 7822* (G). WEST VIRGINIA¹. Greenbrier Co.: White Sulphur Springs, *W. W. Eggleston 4355* (G, M, NY). Hampshire Co.: Okonoko, *Wilbert Frye* (Duke). NORTH CAROLINA. Franklin Co.: Bunn, *H. J. Oosting 1730* (Duke). OHIO. Jefferson Co.: Steubenville, *H. M. Mertz* (US). TENNESSEE. Carter Co.: Elizabethtown, *H. M. Jennison* (US). HORT. Lansing, Mich., *L. H. Bailey* (BH). Poughkeepsie, N. Y., *P. J. Van Melle* (BH).

SILENE CAROLINIANA ssp. **Wherryi** (Small), n. comb. Figure 2. *S. Wherryi* Small in *Torrey* 26: 66. 1926. Based on material from Alabama and Kentucky. The writer has examined the type which is in the herbarium at the New York Botanical Garden. It is the collection of J. B. Hobdy, no. 11, from open woods on calcareous sandstone, Albertville, Marshall Co., Alabama. The species was named for Dr. E. T. Wherry, who first brought its distinctive characters to the attention of Dr. Small. Perennial, 8–32 cm. high; rosette-leaves elliptic-lanceolate, oblanceolate, or rarely oblong-spatulate, mostly acute, occasionally obtuse, 1.5–8.0 cm. long, 0.2–1.4 cm. broad, glabrous on both surfaces, ciliate; stem and cauline leaves pubescent; cauline leaves lanceolate, 1.5–9.0 cm. long, 0.3–0.8 cm. broad; inflorescence cymose; calyx broadly tubular, densely pubescent or puberulent with white eglandular hairs, 1.5–2.2 cm. long; petals with claws equaling or sometimes exceeding calyx, blades 1–1.4 cm. long, rounded or emarginate; style about as long as ovary.

Dr. Small originally distinguished his species by the calyx equaling the claws of the petals, densely pilose with non-glandular hairs, and the style about as long as the ovary. The writer has found the pubescence and the relative width of the calyx to be most satisfactory for separating this population from ssp. *pensylvanica*. Least satisfactory is the length of the calyx. In many plants of ssp. *pensylvanica*, this equals the claws of the petals. In that subspecies, the style is from 5–6 mm. and the ovary from 4–5 mm., while in ssp. *Wherryi* the style is from 5–8 mm. and the ovary from 6–8 mm. Not enough fresh material was available to make detailed measurements possible, but these figures are perhaps suggestive. The style and ovary are both somewhat larger in ssp. *Wherryi*, but of approximately the same relative length.

The writer regrets that he must reduce to subspecific rank a species named in honor of a respected contemporary botanist, but taxonomy permits no opportunity for sentiment. Specimens, such as some of those cited under the last subspecies from West Virginia and western

¹ The following record may be added under West Virginia. Mineral Co.: New Creek, *L. H. Bailey* (BH).

Virginia, while closer to *ssp. pennsylvanica* than to the present race, yet are somewhat intermediate and indicate that the two populations can not be maintained as species.

The *ssp. Wherryi* is a plant of rocky upland woods, usually in calcareous regions, although it is sometimes found in slightly acid situations. The flowering period is from April through May. As at present known, the range is broken into three areas: southern Ohio and Kentucky, Missouri, and central and northern Alabama. OHIO. Adams Co.: ———, *Conrad Roth* (G). Highland Co.: Brush Tp., *L. L. Pontius & F. Bartley* (US). Pike Co.: Byington, *E. T. Wherry* (NY). Scioto Co.: Rarden, *Delzie Demarce 10615* (NY, Ph). KENTUCKY. Fayette Co.: Lexington, *Robert Peter* (Mich). Franklin Co.: Frankfort, ——— (G). Jassamine Co.: ———, photo by *E. T. Wherry* (NY). MISSOURI. Dent Co.: between Howe and Iligo, *J. A. Steyermark 18694* (M). Laclede Co.: Hazelgreen, *E. J. Palmer 39198* (G, M, US). Phelps Co.: Jerome, *J. H. Kellogg 21* (Corn, M, NY). Pulaski Co.: Hooker, *J. A. Steyermark 7776* (M, US). Shannon Co.: 3 miles south of Dent Co.—Shannon Co. line, *J. A. Steyermark 18922* (M). ALABAMA. Autauga Co.: between Booth and Autaugaville, *R. M. Harper 3028* (BH, G, M, NY, Ph). Bibb Co.: Centerville, *E. T. Wherry* (G, US). Cullman Co.: Cullman, *Mary & Emily Molar* (?). Elmore Co.: Wetumpka, *E. T. Wherry* (G, US). Etowah Co.: Gadsden, *T. L. Boynton* (US). Jefferson Co.: Birmingham, *E. J. Palmer 35313* (G, M). Marshall Co.: Albertville, *J. B. Hobdy 11* (NY, US). HORT. Harvard Botanical Garden, ——— (G). T. M. Rock Garden, New York Botanical Garden, *K. Quinn* (BH).

From Shannon Co., Mo., the writer has seen two collections of *J. A. Steyermark*, nos. 18923 & 18924 (M) which seem to represent hybrids between *Silene virginica* L. and *S. caroliniana* *ssp. Wherryi*. According to the notes of the collector, these are natural hybrids occurring with the parent species.

S. caroliniana is perhaps most closely related to *S. virginica*. In separating the two species, the length of the petals, the color of the corolla, and the nature of the cauline leaves and calyx are more satisfactory than the furcation of the petals, since in *S. virginica* the petals are occasionally only slightly emarginate.

The above discussion represents what the writer, as a descriptive taxonomist, knows about the Wild Pinks. He hopes that cytologists and geneticists will now attack the problem. If the three populations designated as subspecies have different basic chromosome numbers or if they show a high degree of sterility when crossed with each other, the conclusions reached here may have to be changed.

LITERATURE CITED

- Small, J. K. 1926. A new catchfly from the southeastern states. *Torreyia*. 26: 65-67.
- Weatherby, C. A. and Griscom, L. 1934. *Silene caroliniana* Walter, in notes on the spring flora of the coastal plain of South Carolina north of Georgetown. *Rhodora*. 36: 53.

BAILEY HORTORIUM
CORNELL UNIVERSITY
Ithaca, N. Y.

CHROMOSOMES OF PROSERPINACA L.—This North American genus of *Halorrhagidaceae* appears to consist of three described species: *Proserpinaca palustris* L., *P. pectinata* Lam., and *P. intermedia* Mackenzie; Fernald and Griscom¹ recognize two varieties of *P. palustris*.



Fourteen somatic chromosomes in root-tip smears of *PROSERPINACA PALUSTRIS* (fig. 1), of *P. PECTINATA* (fig. 2), of *P. INTERMEDIA* (fig. 3). All $\times 4500$.

In a letter of August 15, 1939, Professor Fernald wrote: "In an account of the past year's work which is now going to the printer I specially refer to a pool not far from Lee Hall on the road from Yorktown to Williamsburg, full of *Proserpinaca pectinata*, *P. palustris* and *P. intermedia*, the latter sometimes thought to be a fertile hybrid. I call attention to this and to the beautiful opportunity to study the situation cytologically." Accordingly, on August 21, from a ditch by Route 170, about halfway between Lee Hall and Yorktown, Virginia, the writer collected specimens of the three species (Baldwin 421, 422, and 423). Root-tip smears showed each of the species to have 14 somatic chromosomes (FIGS. 1, 2, and 3).—J. T. BALDWIN, JR., Department of Botany, University of Michigan.

¹ Fernald and Griscom, *RHODORA* 37: 167-189. 1935.

SOME NEWLY DESCRIBED FORMS FROM MISSOURI.—Types of the following are deposited in the Herbarium of Field Museum of Natural History and isotypes in the Missouri Botanical Garden.

PSORALEA TENUIFLORA Pursh, f. **alba**, f. nov., petalis albis.—Limestone glade on top of east-facing bluffs along Osage River, T40N, R23W, Sect. 13, 2½ miles west of Warsaw, Benton County, June 3, 1938, *J. A. Steyermark 5779* (TYPE).

HYPERICUM PSEUDOMACULATUM Mack. & Bush, f. **flavidum**, f. nov., corolla filamentibusque pallidis lacteo-luteis.—Open rocky, cherty barren slopes along Mill Creek, 5 miles southeast of Pineville, McDonald County, May 31, 1938, *J. A. Steyermark 5606* (TYPE).

The pale creamy-yellow corolla and filaments distinguish this form from the normal orange-yellow type.

RUELLIA CAROLINIENSIS (Walt.) Steudel, f. **alba**, f. nov., corolla alba.—Prairie slopes above limestone bluffs along Long Creek, 1½ miles south of Kingston, Caldwell County, June 23, 1938, *J. A. Steyermark 6058* (TYPE).

HOUSTONIA PUSILLA Schoepf, f. **rosea**, f. nov., corolla rosea vel carmesina.—Along road D, in Sect. 8, 4 mi. west of Jerome, Pulaski County, April 17, 1937, *J. A. Steyermark 4599a* (TYPE).

The color of the corolla in this form varies from rose to carmine.

Cirsium altissimum normally has heads of rose-colored or purplish corollas. An albino form, with the corollas of the heads pure white, has recently been collected by Mr. George Moore of Lebanon, Missouri. Mr. Moore has long been active in studying and collecting the native flora of Laclede County, and it is a pleasure to name this form of *Cirsium altissimum* in his honor. The plant may be called

CIRSIIUM ALTISSIMUM (L.) Spreng., f. **Moorei**, f. nov., corollis albidis.—Mill Creek, Laclede County, Missouri, August 25, 1939, *Geo. Moore*.—JULIAN A. STEYERMARK, Field Museum of Natural History.

Volume 41, no. 491, including pages 521–560 and plates 574–579, was issued 31 October, 1939.

ERRATA

- Page 8, line 30; for *Gracffiana* read *Graeffeana*.
Page 44, line 20; for *hyalino* read *hyalino*-.
Page 107, in second column, line 36; for *macrorrhiza* read *macrorrhiza*.
Page 142, line 3; for 461-464 read 551-554.
Page 147, line 9; for *tetrandum* read *tetrandrum*.
Page 173, line 32; for CANADENSIS read CANADENSE.
Page 204, line 36; for *C. Stevenii* read *C. alpina*, var. *Stevenii*.
Page 216, line 22; for *Seemanii* read *Seemannii*.
Page 217, line 31; for *Seemanii* read *Seemannii*.
Page 232, line 36; for ARVENSE read ARVENSIS.
Page 243, line 25; for TETRANDUM read TETRANDRUM.
Page 250, line 37; before var. *parviflora* insert *Phaca frigida*.
Page 273, line 25; for 1913 read 1914.
No. 487, in Contents, line 9; for 315 read 314.
Page 334, line 20; for *oblonga* read *oblongata*.
Page 377, line 9; for *Isnarda* read *Isnardia*.
Page 402, line 34; for *ancestory* read *ancestry*.
Page 417, line 5; for *Batte* read *Bath*.
Page 436, line 35; for *to* read *too*.
Page 437, line 19; for 51 read 31.
Page 447, line 15; for *trys* read *tries*.
Page 494, line 19; for *southern* read *northern*.
Plate 570, line 4 of caption; for *Township* read *County*.
Page 538, line 16; for 3-5 read 2-3.
Page 539, line 18; for *London* read *Loudoun*.

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